CITY OF DES MOINES

PLANNING BUILDING AND PUBLIC WORKS DEPARTMENT

RESIDENTIAL RE-ROOF REQUIREMENTS BH-003

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RE-ROOF REQUIREMENTS

2006 Residential Building Code (IRC), Chapter R105.1, states "Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the building official and obtain the required permit."

This means that a building permit is required to re-roof any residential structure. These permits can be issued over the counter during regular business hours, 8am - 4:30pm, Monday through Friday. The cost of the permit is based upon the valuation of the project. This is the cost of materials and labor to complete the work (2006 IRC, Chapter R108.3). To obtain an approximate value of the job before application, you may obtain a copy of the current ***Permit Valuation Guidelines*** handout either by dropping in our office or by downloading it from our website at http://www.desmoineswa.gov.

Most re-roofing permits will call for two inspections; a roof nailing inspection and a final building inspection. The phone number to request an inspection is (206) 870-6531. You will need your permit number, contact name and phone number, and the type of inspection you need. The cut off time for next day inspections is 3pm and any calls left after that time will not be heard until the following day at 3pm and then scheduled for the day after.

1) The roof nailing inspection is called for after the old material has been removed and before the new material is in place. During the inspection, the inspector will be checking to make sure that the underlying material is not soft, deteriorated, cracked, or broken. If any of these problems are evident, the inspector will provide you with a list of all problems (a correction notice) and ask that you correct these problems as soon as possible. Once corrections have been made, you will need to call in for a re-inspection to make sure all are to code and there are no further obstacles in the way. It is your responsibility to provide the necessary ladder and safety equipment for the inspection. Inspectors do not carry ladders with them.

2) Once you have passed the roof nailing inspection, you will need to call in for a final building inspection. The inspector will then be checking to make sure everything has been done correctly and that the code requirements have been met. If there are no further corrections, the inspector will then sign off on the permit and indicate that is "finaled". This permit record will be an important document to keep in your files for insurance and real estate purposes, so it is important to call in for the final inspection.

If you have any questions about obtaining the permit, costs of the permit, or the inspection process, please contact the Building Department office at (206) 870-7576.

VENTILATION AS PER IRC R806.2

R806.2 Minimum Area: The total net free ventilating area shall not be less than 1 to 150 of the area of the space ventilated except that the total area is permitted to be reduced to 1 to 300, provided at least 50 percent and not more than 80 percent of the required ventilating area is provided by ventilators relocated in the upper portion of the space to be ventilated at least 3 feet above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents. As an alternative, the net free cross-ventilation area may be reduced to 1 to 300 when a vapor barrier having a transmission rate not exceeding 1 perm is installed on the warm side of the ceiling.

2006 INTERNATIONAL RESIDENTIAL CODE
CHAPTER 9
ROOF ASSEMBLIES

R901
GENERAL

901.1 Scope.

The provisions of this chapter shall govern the design, materials, construction and quality of roof assemblies.

R902
ROOF CLASSIFICATION

902.1 Roofing covering materials.

Roofs shall be covered with materials as set forth in Sections R904 and R905. Class A, B or C roofing shall be installed in areas designated by law as requiring their use or when the edge of the roof is less than 3 feet (914 mm) from a property line. Classes A, B and C roofing required to be listed by this section shall be tested in accordance with UL 790 or ASTM E 108. Roof assemblies with coverings of brick, masonry, slate, clay or concrete roof tile, exposed concrete roof deck, ferrous or copper shingles or sheets, and metal sheets and shingles, shall be considered Class A roof coverings.

902.2 Fire-retardant-treated shingles and shakes.

Fire-retardant-treated wood shakes and shingles shall be treated by impregnation with chemicals by the full-cell vacuum-pressure process, in accordance with AWPA C1. Each bundle shall be marked to identify the manufactured unit and the manufacturer, and shall also be labeled to identify the classification of the material in accordance with the testing required in Section R902.1, the treating company and the quality control agency.

R903
WEATHER PROTECTION

903.1 General.

Roof decks shall be covered with approved roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof assemblies shall be designed and installed in accordance with this code and the approved manufacturer's installation instructions such that the roof assembly shall serve to protect the building or structure.

903.2 Flashing.

Flashings shall be installed in such a manner so as to prevent moisture entering the wall and roof through joints in copings, through moisture permeable materials, and at intersections with parapet walls and other penetrations through the roof plane.

903.2.1 Locations.

Flashings shall be installed at wall and roof intersections; wherever there is a change in roof slope or direction; and around roof openings. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than 0.019 inch (No. 26 galvanized sheet).

903.3 Coping.

Parapet walls shall be properly coped with noncombustible, weatherproof materials of a width no less than the thickness of the parapet wall.

903.4 Roof drainage.

Unless roofs are sloped to drain over roof edges, roof drains shall be installed at each low point of the roof. Where required for roof drainage, scuppers shall be placed level with the roof surface in a wall or parapet. The scupper shall be located as determined by the roof slope and contributing roof area.

905.2.8 Flashing.

Flashing for asphalt shingles shall comply with this section.

905.2.8.1 Base and cap flashing.

Base and cap flashing shall be installed in accordance with manufacturer's installation instructions. Base flashing shall be of either corrosion-resistant metal of minimum nominal 0.019-inch (0.483 mm) thickness or mineral surface roll roofing weighing a minimum of 77 pounds per 100 square feet (3.76 kg/m2). Cap flashing shall be corrosion-resistant metal of minimum nominal 0.019-inch (0.483 mm) thickness.

905.2.8.2 Valleys.

Valley linings shall be installed in accordance with manufacturer's installation instructions before applying shingles. Valley linings of the following types shall be permitted:

1. For open valley (valley lining exposed) lined with metal, the valley lining shall be at least 24 inches (610 mm) wide and of any of the corrosion-resistant metals in Table R905.2.8.2.
2. For open valleys, valley lining of two plies of mineral surface roll roofing, complying with ASTM D 249, shall be permitted. The bottom layer shall be 18 inches (457 mm) and the top layer a minimum of 36 inches (914 mm) wide.
3. For closed valleys (valley covered with shingles), valley lining of one ply of smooth roll roofing complying with ASTM D 224 Type II or Type III and at least 36 inches (914 mm) wide or valley lining as described in Items 1 and 2 above shall be permitted. Specialty underlayment complying with ASTM D 1970 may be used in lieu of the lining material.

TABLE R905.2.8.2
VALLEY LINING MATERIAL

MATERIAL	MINIMUM THICKNESS (inches)	GAGE	WEIGHT (pounds)
Cold -rolled copper	0.0216 nominal	-	ASTM B 370, 16 oz per square foot
Lead-coated copper	0.0216 nominal	-	ASTM B 101, 16 oz per square foot
High-yield copper	0.0162 nominal	-	ASTM B 370, 12 oz per square foot
Lead-coated high-yield copper	0.0162 nominal		ASTM B 101, 12 oz per square foot
Aluminum	0.024	-	-
Stainless Steel	-	28	-
Galvanized Steel	0.0179	26 (zinc coated G90)	-
Zinc Alloy	0.027	-	-
Lead	-	-	2 ½
Painted terne	-	-	20

For SI: 1 inch=25.4 mm, 1 pound = 0.454 kg.

905.2.8.3 Crickets and saddles.

A cricket or saddle shall be installed on the ridge side of any chimney greater than 30 inches (762 mm) wide. Cricket or saddle coverings shall be sheet metal or of the same material as the roof covering.

905.2.8.4 Sidewall flashing.

Flashing against a vertical sidewall shall be by the step-flashing method.

905.2.8.5 Other flashing.

Flashing against a vertical front wall, as well as soil stack, vent pipe and chimney flashing, shall be applied according to asphalt shingle manufacturer's printed instructions.

905.3 Clay and concrete tile.

The installation of clay and concrete shall comply with the provisions of this section. Clay roof tile shall comply with ASTM C1167.

905.3.1 Deck requirements.

Concrete and clay tile shall be installed only over solid sheathing or spaced structural sheathing boards.

905.3.2 Deck slope.

Clay and concrete roof tile shall be installed on roof slopes of two and one-half units vertical in 12 units horizontal (2 1/2 :12) or greater. For roof slopes from two and one-half units vertical in 12 units horizontal (2 1/2 :12) to four units vertical in 12 units horizontal (4:12), double underlayment application is required in accordance with Section R905.3.3.

905.3.3 Underlayment.

Unless otherwise noted, required underlayment shall conform with ASTM D 226, Type II; ASTM D 2626, Type I; or ASTM D 249 mineral surfaced roll roofing.

905.3.3.1 Low slope roofs.

For roof slopes from two and one-half units vertical in 12 units horizontal (2 1/2 :12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be a minimum of two layers underlayment applies as follows:

1. Starting at the eave, a 19-inch (483 mm) strip of underlayment shall be applied parallel with the eave and fastened sufficiently in place.
2. Starting at the eave, 36-inch-wide (914 mm) strips of underlayment felt shall be applied, overlapping successive sheets 19 inches (483 mm), and fastened sufficiently in place.

905.3.3.2 High slope roofs.

For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be a minimum of one layer of underlayment felt applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches (51 mm), fastened sufficiently in place.

905.3.3.3 Underlayment and high wind.

Underlayment applied in areas subject to high wind [greater than 110 miles per hour (177 km/h) per Figure R301.2(4)] shall be applied with corrosion-resistant fasteners in accordance with manufacturer's installation instructions. Fasteners are to be applied along the overlap not farther apart than 36 inches (914 mm) on center.

905.3.4 Tile.

Clay roof tile shall comply with ASTM C 1167.

905.3.5 Concrete tile.

Concrete roof tile shall comply with ASTM C 1492.

905.3.6 Fasteners.

Nails shall be corrosion-resistant and not less than 11 gage, 5/16-inch (10.6 mm) head, and of sufficient length to penetrate the deck a minimum of 3/4 inch (19.1 mm) or through the thickness of the deck, whichever is less. Attaching wire for clay or concrete tile shall not be smaller than 0.083 inch (2.1 mm). Perimeter fastening areas include three tile courses but not less than 36 inches (914 mm) from either side of hips or ridges and edges of eaves and gable rakes.